1: Petrullo E-3 (1933-34) 1939 SS19 Yaruro SS19

512 grains of sand, they wait patiently and quietly, though hungry.
461 They seek no shelter from the wind, preferring it to the myriads of insects lurking in any sheltered spot. And then, too, it is cool in the wind, terrifically hot away from it.

About midafternoon the hunters and food gatherers straggle in.
572 They bring small crocodiles and turtles, crocodile eggs, turtle eggs,
224 perhaps some honey; and the women return with full baskets con-
222 taining changuango, a wild root that they have dug up in the savanna. They, too, may bring turtle eggs. Not always, of course. The men and the women may return with empty hands and empty baskets. In any event there is no boisterous reception, but the same silence, the same quiet acceptance of the day and what it brings as they have shown at its beginning. Fires are built larger, the women roast the
512 roots, the men help with the turtles and the crocodiles. These are
252 placed whole on the fire until the shells are toasted and then they
515 are cracked open. Wives become busy delousing their husbands, using a carved stick to help in the search. Sometimes the lice are picked and eaten. But the bodies of the men are covered with numerous black blisters, showing that they have suffered the daily torment from the insects. The wife crushes all of these blisters with the same delousing tool.

Dinner is a gala time. Calabash dishes containing the various
512 courses are placed in the center of the ring formed by each family.
264 The food is picked up and carried to the mouth with the fingers.
● 262 There are crocodile eggs. These are opened and the contents are sucked up raw. The same is done with the turtle eggs. There is the course of roasted changuango, and the pieces of turtle meat. But the real delicacy is crocodile, the best meat of all. The crocodile is eaten in its entirety, except for the entrails, and when the dinner is over some of it is left by the fire, an open invitation to anyone to fill any empty portion of his stomach. The stomachs become distended as tremendous quantities of food are swallowed. This is the only real meal of the day, and the fear of a dinnerless tomorrow drives the eaters to exceptional feats of gourmandizing until their bodies can hold no more. The lean dogs fight among themselves over the refuse heaps. The vultures glide overhead or are busy at crocodile entrails.

There is no after dinner work—no kitchen or table ware to wash,
512 nothing to spoil the proper enjoyment of a full stomach. They eat
517 until they have had enough, and then they move to the east of the
776 fires to lie on the clean sands and watch the sun hide beneath the western horizon. For about half an hour they watch the ever-changing colorful western sky and when rays of light emanate from below the horizon to streak the heavens with blue and gold and white, they

1: Petrullo E-3 (1933-34) 1939 SS19 Yaruro SS19

Yawalapiti village in Brazil; but the very silence was expressive of the mutual sorrow at our parting. Landaeta loaded me and my baggage in a canoe and we drifted slowly away, leaving on the vast beach a few human beings alone in a strange world, but not lonesome, since they live with their gods.

Economic Life

The Yaruros practice no agriculture and keep no domestic animals except the dog, even though they inhabit country over which roam wild horses and cattle, and they come in contact with the "llaneros," who are typically pastoral. Therefore, their daily dinner is dependent upon, and determined by, indigenous environment and their own energy. The quality and abundance of their food supply depends upon seasonal variations of climate. A period of drought or a too prolonged period of rain may cause famine. They would be allowed a degree of freedom from the daily task of acquiring dinner were they able to store any food for future use. The tropics, however, offer special difficulties to this which are not present in more temperate climates. Their knowledge of what is edible in various localities, where to find it, how to gather it, and how to keep it and what is available at different times of the year are all factors important to the satisfaction of their most fundamental need. Technical knowledge in the making of tools and methods of hunting and fishing are also important.

As if not satisfied by the degree of their dependency on it, and on their technical knowledge, primitives often self-impose other limitations. There may be an abundance of a particular animal which could be hunted easily or a particular plant which could be gathered in quantity, yet the primitives very often raise barriers against such practices. The fact that they have religious and perhaps magical reasons for such attitudes explains but does not change the situation. Thus, for instance, among them deer may be plentiful in a region, the people may be starving, and yet no deer is killed and eaten.[8]

Limitations such as these are not entirely imposed by nature and by the culture of the people; often, the proximity and the attitude of other groups of mankind play their part. A weak tribe will be restricted in its lands over which it may wander, hunt, and claim ownership, and very often may be reduced to seeking a less desirable environment where food is even scarcer. Or a new people may seize its lands and they will be prohibited even from hunting on these lands. Or there may be an influx of peoples who will live partially on the hunt also, though their main source of food may be agricultural.

[8] The peoples of the Kuluene river, Matto Grosso, Brazil, will not hunt nor eat deer.

1: Petrullo E-3 (1933-34) 1939 SS19 Yaruro SS19

619
101

not allowed to the neighboring peoples, such as the Otomacos or the Achaguas. The social and linguistic bonds seem to be strong enough to cause the Yaruros to recognize themselves as a distinct people.

FOODS

177
224

In the llanos food is not plentiful except in and along the rivers; but the foraging activities of the Yaruros are restricted to the banks of the Capanaparo and Sinaruco Rivers for another reason. The hunting of land animals has practically stopped for fear that they will be accused by the ranchers of killing cattle. In recent years the activities of the crocodile hunters have ruthlessly destroyed the game, and since such hunters live on the country they have consumed a portion of the available quantity of game on which the Yaruros depended for a livelihood.

221
225
136

In the dry season game is concentrated along the rivers and the water holes. It is considerably easier to hunt it then than in the rainy season, when it is dispersed over the plains. The turtle, which is found in great quantities in the waters of the Orinoco and its tributaries, suffers a yearly mass hunt and destruction which has its effect on the food supply of the Yaruros. It has been discovered that the turtle fat and eggs will produce a fine grade of oil which sells for a high price. The result is that the breeding grounds of the turtles become yearly a scene of great activity and destruction. No one knows how many thousands of turtles and turtle eggs are gathered and converted into this oil late in the month of April.

[237]

136
225
262

The meat staple of the Yaruros is the *Crocodilus babu*, a small crocodile which grows to about 6 feet long. This animal is hunted daily and eaten in its entirety. Its meat is esteemed above that of any other animal. On the other hand, the cayman, sought for its hide, is not hunted as a rule by the Yaruros. Perhaps this meat is not as savory as that of the babu, but the Yaruros give the reason that the large crocodile represents a race of mankind to which they are related. So that although occasionally it may be hunted for the price that its hide may bring, it is never eaten and never hunted consistently.

[825]

Next to the crocodile, turtles, including the matamata and tortoise, are to be found broiling over the fires in every Yaruro camp, and if they are not broiling they can be seen in shallow pools of water with their forelegs tied to their hindlegs. In this way they can keep alive but cannot walk away. The armadillo is seldom obtained and other meats appear occasionally on the diet of the Yaruros. Fishing is resorted to when neither crocodiles nor turtles are obtainable. The caribe, which is the piranha of Brazil, is esteemed but little. The tonino, which can be seen gracefully playing in the water or can be heard snorting in the rivers at night, is never hunted. It also is

[226]

1: Petrullo E-3 (1933-34) 1939 SS19 Yaruro SS19

thought to be related to the race of mankind. On the other hand, the manatee is hunted occasionally. Birds are hunted but seldom, but the meat of the iguana is prized. This animal is not found in great quantities, however, in the open plains.

The vegetable diet is somewhat more plentiful and varied. There are no restrictions or taboos on what can be eaten. In the dry season it is the potato-like changuango, which is gathered by the women and which is to be seen broiling over the fires at all times, and which is the only food which the Yaruros are able to keep for a few days by burying it in the sand. In the rainy season it is the chigua seed and the barbaco which form the basic foods. The following list includes most of the foods eaten by the Yaruros:

DRY SEASON

Eggs.—Terracai (small water turtle) (mostly in February), turtle (March, April), galapago (tortoise—December), crocodile (cayman—February), babu (December).

Meats.—Terracai, turtle, galapago, crocodile (babu), deer, chiguire (capibara), birds, iguana.

Vegetables.—Changuango (root found in the savanna), barbaco (root found in the forest, mostly in May), guapo (a root found in the forest), wild yam (found in the savanna and the forests), fruit of the macanilla palm, honey, hearts of palm (in April).

DRY AND RAINY SEASON

Fish.—(Local Spanish names) tapuara, caribe, toporo, tachiama, palometa, pavon, cajani, temblador (electric eel).

RAINY SEASON

Meats.—Terracai, turtle, galapago, crocodile (babu), deer, chiguire, birds, iguana.

Vegetables.—Fruit of the moriche, chigua, barbaco.

PROPERTY

The Yaruros do not have much personal property. Nevertheless, what each person possesses is respected scrupulously. This attitude is especially in evidence when, for instance, a visitor attempts to purchase such a thing as a pot. In my case I was forced to ask the men. In spite of any price that I might offer they never allowed themselves to give any kind of an answer to my offer. Instead they offered the explanation that the pots were the property of the women and, therefore, they had to be asked if they wished to sell them. My own property I left in camp often without anyone to watch over it, but never did I miss even a sheet of paper.

1: Petrullo E-3 (1933-34) 1939 SS19 Yaruro SS19

LIFE CYCLE

BIRTH

842 773 Biological conception is clearly understood. One of the myths tells of Kuma's desire to have a child. She asked Puaná to impregnate her in the thumb, but Puaná, who in these myths appears both as trickster and wise man, told her that such impregnation would result in an overpopulation and advised her to allow herself to be impregnated in the ordinary way. She allowed herself to be persuaded, and Hatchawa was born. It may be worth noting that though Hatchawa was the issue, he is referred to as the grandson of Kuma. Whether this inconsistency is to us merely an unexplainable situation, or whether it has greater significance, I was not able to find out.

844 846 676 262 When delivery is imminent a shelter is built for the prospective mother, apart from all other people. Her husband's moiety brothers build a similar structure for him also apart from the camp. The woman is tended by the women of her family and moiety and the husband by the men belonging to his moiety. Both abstain from eating fish, turtle, and crocodile. Iguana and deer meat and the usual vegetable diet are allowed. During delivery and for 10 days after the husband lies in a hammock and engages in no physical activity. Ordinarily he would sleep on the ground. His moiety brothers bring him food. After 10 days he visits his wife but continues to live alone and apart for a month. Now he hunts in the company of other men and is expected to supply his wife with food. The food taboos continue in effect for the full month for both husband and wife. Strict continence is practiced by the husband. When the month is over the family is reunited.

MENSTRUATION

152 841 The Yaruro's actual attitude toward menstruation is not one of fear or wonder. The phenomenon is accepted much as it is among us, as a disturbing but unavoidable event. In the literature on primitive peoples it is often reported that menstruation is held to be a dangerous period for the woman and for the people. One may question the correctness of this observation, if observation it be, with the suspicion that because certain taboos are observed fear is the motivating response. I have found the observance of taboos among a dozen South American tribes with whom I have had personal contact but there has been no indication of actual fear. One wonders if such events have not been too highly dramatized and rationalized by the civilized visitor rather than by the primitives.

841 Among the Yaruros the first period in a girl calls for special treatment at the hands of the women. The girl's face is covered with a

311 241 within these 800 acres, much is occupied by the streams, calculated at their flood maxima which define non-gardenable areas, while other parts are inadequate in soils or water for use as gardens. Consequently, the actually tillable areas comprise a maximum of about 200 acres or about 0.5% of the land surface. It should be noted, of course, that all these 200 acres are not usable for crops since those in the *montes* cannot be used for cane and bananas, while the wet areas nearest the streams cannot be used for corn or manioc. Thus the maximum area for the staple crops, manioc, corn, and bananas, is about 145 acres (see Table I).[1,11]

168 311 Using Carneiro's equations,[12] we may estimate the maximum population which would be in equilibrium with this acreage, estimating .5 acres as an approximate amount of land required to provide the average person with the food he ordinarily derives from cultivated plants per year.[12] The calculation gives us 92 persons (see Figure 1).[14] We may also estimate the number of years (L) the group may stay in the present locality with its present population of 24 before wearing out the available tillable land so that they would have to move (see Figure 2). This would be 50 years. Since the entire fallow and planting cycle of any piece of land is only 13 years, under present circumstances, the Totúdoro Yaruro will not have to move from their present territory at all, in view of their small and decreasing population.

[128]

Figure 1

$$P = \frac{\frac{T}{(R+Y)} \times Y}{A}$$

$$P = \frac{\frac{200}{10+3} \times 3}{.5}$$

P = 92 (=67 if R is 15)

Figure 2

$$L = \frac{\frac{T}{P \times A}}{Y}$$

$$L = \frac{\frac{200}{24 \times .5}}{3}$$

L = 50 years

R = year of fallow
Y = years of productivity
A = land used to provide plant food for one person a year
P = population
L = number of years group located in one place
T = acres of cultivable land within walking-working distance of village

The ideal figures given above would be somewhat modified upwards by the additional foods provided by fishing, hunting, and gathering which, in the wet season, constitute about 30% of the diet and, in the dry, perhaps

● [262]

[1] [For Table I see pp. 28-30, category 116--Analyst]
[11,12,13,14] [For footnotes, see p. 43, category 116--Analyst]

50% of the diet or a little less. The ideal figures would again be reduced, on the other hand, by allowing for the predations on gardens of animals, especially the pigs, which eat manioc and corn, the Guahibo Indians who allegedly steal sugar cane, and insect losses. Our figures, then, will be modified only a few units by the additional sources of foods. We may thus revise our population figure to between 100 and 105 (or, if a 15-year fallow period is assumed, the figure would be 75-80), figures which correspond to the Yaruro's own ideal of what a proper population for this area should be. If the population increased beyond this number of people, the Yaruro would have to exploit their gardens at a rate greater than the rate of land reconstitution, and also expand hunting, fishing, and gathering beyond the average long-term carrying capacity of the savanas and the rivers, thus reducing their potential productivity. Adding together the maximum populations supportable by these food resources, as well as by the recently introduced pigs, a figure approximating 125-150 persons might be reasonable for this particular territory. This gives a density of 2 persons per sq. mile, a characteristic figure for tropical forest tribes.[15]

If the population rose beyond this maximum capacity of the land-technology relationship, groups would either have to fission off, go on the warpath, regulate population by any of a number of internal institutions such as infanticide, or die either from extreme famines or from steady nutritional deficiency. Under present population conditions none of these is necessary, yet both fissioning and population regulation by contraception occur. Fissioning appears to be fostered by the search for settlement locations requiring minimum labor for maximum return and also to establish community authority under the person leading the fissioning group independent of that excercised by the community from which fissioning took place. Contraception appears to be a matter of choice revolving about maintaining a certain freedom from the cares of motherhood until such time as the marriage partners are reasonably convinced that the marriage is permanent. Indirectly, this contributes to the distribution of more effective female producers among the more effective male producers in the most productive areas, since a second marriage often involves shifting to a generally more effective husband whereas a shift to a less effective husband is scarcely to be found. Both fissioning and contraception, however, give evidence of techniques which were developed to handle man-food balance in happier days.

A number of formal characteristics of any ecology may permit us to deduce the form of society which would be expected on the basis of such characteristics. In so far as the ecological forms were to remain essentially unchanged over great periods of time, no changes in the forms of the social order attached to the ecological conditions would be expected. An internal equilibrium is maintained until such time as a dynamic imbalance occurs because of changes from internal or external sources. It is essential to examine to what extent the internal equilibrium prevents or fosters the occurence of dynamic imbalances in any particular ecological setting. We shall return to this question after the following itemization of Yaruro ecological forms.

[15] [for footnote see p. 43, category 116 -- Analyst]

mother's and sister's households, nevertheless hunted and harvested for himself, and often cooked for himself meals of the type ordinarily cooked only by women. 462 463

The forms and characteristics of surpluses, as defined by Harris,[16] shed further light on the structure of the ecology. The technological surplus, defined as the difference between total calories annually produced by any definable group and the calories used to produce them, or as the ratio between these two figures, may be estimated at about 8 or 9 to 1 as compared with Harris's estimated figures of 2:1 for the Sirionó or 33:1 for the Pencuyut Maya.[17] Since as Harris remarks, the degree of social stratification in a large number of cases correlates with the size of the technological surplus, we would scarcely expect to find social stratification among the Yaruro, nor even any significant ranking. Where the technological surplus is low, the producer's surplus, defined as the difference between total calories produced by any given group and the total calories used by the producers for all purposes must also be low. Therefore the number of persons other than producers who can be supported by the producers is also limited. The producers' surplus may provide an index of the degrees of specialization which might be expected. In the case of the Yaruro one would expect no, or very low, specialization. Again, with a low producers' surplus, one would expect to find a greater proportion of the group involved in production than where such surpluses are high, for otherwise there would be insufficient calories to support more than a few people other than the producers. With a low producers' surplus, one would expect, in general, to find a greater proportion of both sexes engaged in the food quest. This is, of course, born out in the case of the Yaruro. Finally, Harris's harvest surplus is defined as the difference between the amount produced at any given moment, especially at seasonal maxima, and the amount consumed at that time. The actual amount consumable is governed by the seasonal *minima*, since the population cannot rise higher than the food supply at minimum periods permits unless special technological features such as storage, are present. Where the harvest surpluses are of non-storable goods, the population level is in equilibrium with the absolute minima of the harvests. The greater the degree of storability through a nonproductive season, or the less marked a crop is by seasonality, the higher the level to which the minimum population can be raised as compared with the number of people supportable at levels of production comparable to those at the time of harvest. Storability, however, is only one dimension of the harvest surplus. Absolute size of the peak surpluses, their regularity over the years, their distribution in space and time in the annual cycle, their utility in raw form, and the proportion of labor needed to harvest them relative to the time allotted for the harvest are all important dimensions of the harvest surplus. Thus, manioc, the Yauro's chief food resource has no clear peak, is regular over the years (the Yaruro disclaim any famines), is storable both in raw form and in prepared forms, is, in the case of the Yaruro, so located as not to permit of a concentration of labor at any one time and needs no massive labor for harvesting because of short harvest periods. Thus, in general, the very nature of manioc as a crop, and the labor requisites for

121 433 182 [56] [463] [462] [262] [251] [241]

16, 17 [For footnotes see p. 43, category 116--Analyst]

TABLE II

FOODS: THEIR GEOGRAPHICAL PROVENIENCES, TECHNIQUES AND SEASONS OF PRODUCTION; THE DIVISION OF LABOR IN PRODUCTION AND FOOD PREPARATION

Symbols: S.F W.S — summer, fall, winter, spring
M F. — male, female
Q — evaluation of the quantitative importance of the food or raw material in Yaruro subsistence and productive activity: 5 — major staple or resource; 4 — major crop, but not a staple; 3 — important food (or other) resource, but a secondary crop; 2 — minor crop (or other resource) serving as a more or less regular but seasonal delicacy; 1 — mostly a delicacy for occasional enjoyment (very secondary resource)
ɸ — indicates both presence, and by doubling or tripling importance of crop or resource; three ɸɸɸ's do not necessarily mean "3 times as important as 1 ɸ", merely 'of outstanding importance".
/ — sporadically or slightly present
d-m — December to March; a — April; m-s — May-September; o-m — October to November.

Yaruro	Spanish	English	Location and Techniques	Season of Prod. S	F	W	S	Division of Labor Prod. M	F	Food Prep. M	F	Q
CROPS PLANTED:												
ŋoe-ka'ra (x)	yuca amarga	bitter manioc	swiddens, cuttings, dibble	ɸɸɸ	ɸɸɸ	ɸɸɸ	ɸɸɸ	ɸɸɸ	ɸ	/	ɸ...	5
1. p. ŋo-ka'ra	chichicame	" (variety?)	as above									
2. p. a'punda"ki bi'ŋbɛri"a	orfbita (?) (blanca)	" (light)	as above									
3. p. a'pund"ki-k'a'Ra	orfbita (?) (obscura)	" (dark)	as above									
'hurari"ä-'pue	yuca dulce	sweet manioc	as above	ɸɸ	ɸɸ	ɸɸ	ɸɸ	ɸɸ	ɸ		ɸɸ	4
1. p. ŋuä'kw,	yema de huevo	" (variety?)	as above									
2. p. ki'kw,	pata de zamuro	" (variety?)	as above									
3. p. valenciana	valenciana	" (", introd)	as above									

(x) Phonetics: *ä*. etc. = nasalized vowel. *ə* = mid central unrounded vowel. *čh* = palatal c.. *y* = palatalized fricative; *R* = flapped *t*. *ñz* = palatalized nasal continuant, as in English sing, *j* = palatalized affricate, as in English job.

2:Leeds E-5 (1958)1961
SS19 Yaruro SS19
[p.31]
192
241
262
462
221

[p.32]

192
221
241
262
462

2:Leeds E-5 (1958)1961 SS19 Yaruro SS19

Yaruro	Spanish	English	Location and Techniques	Season of Prod. S d-m	F a	W m-o	S o-n	Division of Labor Prod. M	F	Food M	Prep. F	Q
pw$_{ɪ}$	maiz	corn, maize	swiddens, hills, dibble			≠≠≠	≠≠≠	≠≠≠	≠	≠	≠≠≠	4
1. pumɪ'pw$_{ɪ}$	maiz yaruro	Yaruro corn	as above (3 mo., 1 ear/stalk)									
2. 'hamburu"spw$_{ɪ}$	maiz guahibo	Guahibo corn	as above (4 mo., 2 ears/ ")									
3. p. kw$_{ɪ}$'kw$_{ɪ}$ɪa	maiz amarillo	yellow corn	as above (3 mo., 1 ear/stalk)									
'parau"aɪ	plátano, topocho, banana	plantains, bananas	swiddens, machetes to cut, on specially prepared mounds, slips	≠?	≠?	≠≠≠	≠≠	≠≠	/		≠≠	4
1. p. 'aɪ	plátano	plantain	as above (raw or cooked)								≠	
2. p. wo'ko	topocho	plantain	as above (raw or cooked)								≠	
3. p. so'kwi	dos millos	banana	as above (raw or cooked)								≠	
4. p. ka'ru	?	plantain	as above (?)								?	
5. ecocha'mɪ p.	guineo (?)	plantain	as above (raw or cooked)								≠	
6. ka'muce	cumbur	banana	as above (raw)									
ku'ra	ñame	yams	dry swiddens, dibble	≠?	≠?	≠	≠≠	/			≠≠	2
o'de	patilla	melons, pumpkins, squashes	swiddens dibble	≠≠	≠?	≠	≠≠	≠≠	/		≠≠	2
1. kw$_{ɪ}$"bohurarilede	"	water-melon	as above									
2. chumanile.	"	pumpkins	as above									
3. 'yako"da	"?	bottle gourd	as above									
chesi'ã	caña	sugar cane	wet swiddens, dibble, machete	≠?	≠?	≠≠≠	≠≠≠	≠≠≠	≠	/		3
1. ch. mo'ra	caña ?	" (variety ?)	as above									
2. ch. b$_{ɪ}$'reby$_{ɪ}$ci"a	caña blanca	white cane	as above									
	caña criolla	introd var.	as above.									

Yaruro	Spanish	English	Location and Techniques	Season of Prod. S d-m	F a	W m-s	S o-n	Division of Labor Prod. M	Prod. F	Food Prep. M	Food Prep. F	Q
'ç̧ɨame"kwɨ	ñame	yams	swiddens, dibble	≠?	≠?	≠	≠	≠≠	/		≠≠	2
ôa"ri	batata	sweet potato	as above	≠?		≠?	≠	≠≠	/		≠≠	2
ô	ananá	pineapple	swiddens, dibble				≠	≠			/	1
ia	capacho	?	swiddens, ?				≠?	≠			1	?
ç̧'da(=ç̧da"dakwɨ	ocumo (yauta)	xanthosoma	swiddens, dibble	≠?			≠	≠			≠	2
(hô'tɨa"nâ	ají	chili pepper	doubtful if raised on Cinaruco)									
FISHES CAUGHT:												
yagu'pe	agua dulce	?	rivers, caños, hooks, arrows	≠				≠		/	≠	2-
ɾ(='chamachi"ro)	cachama	?	rivers, hooks, arrows	≠				≠		/	≠	1
gui'te	sardina	?	rivers, fish arrows, small hook	≠	≠	≠	≠	≠		/	≠	2
dap'we	guavina	?	caño fishhooks	≠			≠	≠		/	≠	?
ho'nô	palambre	?	rivers, caños, arrows, hooks	≠?		≠	≠	≠		/	≠	2
ip:'à	pinte tigre	?	rivers, caños, hooks	≠	≠	≠	≠	≠		/	≠	2-
pa'chowén"ti	bagre	catfish	rivers, caños, hooks	≠	≠	≠	≠	≠		/	≠	2-
'meô"dakwɨ	viejita	?	as above	≠	≠	≠	≠	≠		/	≠	?
'chôôanda-"jii	"	?	as above	≠	≠	≠	≠	≠		/	≠	?
ninda'ô	"	?	caños, hooks, sardine bait	≠	≠	≠	≠	≠		/	≠	?
uji'ri-ka"Rà	" negro	?	caños, hooks	≠	≠	≠	≠	≠		/	≠	?
u'ra-u'ru	de tierra	?	rivers, hooks	≠	≠	≠	≠	≠		/	≠	?
da're	pavón	?	rivers, hooks, sardine bait	≠	≠	≠	≠	≠		/	≠	?

192
221
226
241
262 ●
462

[p. 33]

2:Leeds E-5 (1958)1961

SS19 Yaruro SS19

[p.34]

Yaruro	Spanish	English	Location and Techniques	Season of Prod. S d-m	F a	W m-s	S o-n	Division of Labor Prod. M	Prod. F	Food M	Prep. F	Q
chu'me	-	?	rivers, cañas, hooks, sardine bait, from platform	-				+		/	+	?
'paka'ra	-	?	as above, also arrows	+	+	+	+	+		/	+	2?
'Yopok'e"se	" colorado	?	rivers, caños, hooks	+	+	+	+	+		/	+	?
šš	caribe blanco	white piranha	rivers, arrows, hooks with especially heavy cord	+				+		/	+	1
(hòle'cis	caribe	piranha	doubtful if caught on Cinaruco)									
(pu'pu	cajarro	catfish	doubtful if caught on Cinaruco)									
FRUITS, ROOTS, AND SEEDS GATHERED:												
t'o'cho	?	?	in mata from big tree, at foot	-				+				1?
gu're (cho'nó)	guayaba	guava	bushes and low trees, distant			+		+				1
t'u	fruta de moriche	miriti palm fruit	near caños in wet savana, from foot of trees			+/+		+			+	2
'mtam"be	?	?	?, from big tree (monte?)			+		+			1	?
tam'be	?	?	?, ?			+						1
mu,to'ui	cardón	teasel (?)	?, from tall trees (prob monte)			+		+				1?
mkai'cho	cacaño	?	?, ?			+						1?
nuri"m	?	?	?, ?			+						1?
pi'hol,	totumo	calabash	monte (?), picked				+	+?			+	3
ni'pi,	chanchango	?	wet savanas, digging stick	+/-					+/+		+	3
cho'kai	guapo	?	monte, savana, digging stick	+/-	+/-	+/-	+/-		+/+		+	2

192
221
222
226
● 262
462

2:Leeds E-5 (1958)1961 SS19 Yaruro SS19

Yaruro	Spanish	English	Location and Techniques	Season of Prod. S d-m	F a	W m-s	S o-n	Division of Labor Prod. M	Prod. F	Food M	Prep. F	Q
ma"hikai	sebu ??	?	savana, digging stick									1
ka'ta	chaguanito sevanero	?	as above									2?
pa'ta	barbaco	?	monte, digging stick									3
gwe'pe (=gwepe'ke)	chigo	? (seed)	near monte, big trees, ground									2
ge (=ke)	chigo	? (seed)	?, ? (as above?)									?
ANIMAL HUSBANDRY:												
o'bweia	marrano	pigs	savanas, herding (introd.)						/			3
oka'taro	gallina	chickens	dunes near houses (")						/			1
ANIMALS HUNTED:												
(so)ha'rigu'ri(a'nà)	oso hormiguero	giant ant eater?	savana, bow and arrow									4
ha'ri	baba	alligator	rivers, heavy barbed arrow									3
mba	venado	deer	savanas, lance arrow, gun									3
ci'do	chigüire	capybara	monte, river, " ", fish arrow									3-
aapu'ta	conejo	rabbit	savana, fish arrow						?			1?
puri	lapa	paca	caño, monte, traps, all arrows						?		?	1?
ya'tutu"mi	iguana	water lizard	rivers, montes, fish arrow						?		?	1?
'ge"te	cachicamo	armadillo	savanas, traps, sticks, hand								/	2-
'ipurime"ta	mante	?	savanas, traps, arrows						?		?	?

[p.35]

192
221
222
224
231
262●
462

2: Leeds E-5 (1958)1961 SSI9 Yaruro SSI9

192
221
224
223
462
●262

-p.36]

Yaruro	Spanish	English	Location and Techniques	Season of Prod. S d-m	F a	W m-s	S e-n	Division of Labor Prod. M	F	Food M	Prep. F	Q
'yacra"tr	picure	? (aguti?)	monte, caño, fish arrow	≠	≠	≠	≠	≠		?	?	?
'iku"ri	tortuga	tortoise	rivers, fishhooks; on Capanaparo, use detachable arrow	≠≠			≠	≠		?	?	2
poda'me	tevecai	terrapin?	rivers, fishhooks " "	≠≠			≠	≠		?	?	2
poda'me	morrocoy	boxturtle	mata, by hand - doesn't run	≠	≠	≠	≠	≠		?	?	1
ci'rida"me	galapago	river turtle	rivers, detachable arrow	≠≠			≠	≠≠		?	?	2
('hôi-obwei"a	chácharo	peccary	doubtful if hunted on Cinaruco)									
(be'ri	manati	manatee	doubtful if hunted on Cinaruco)									
BIRDS HUNTED:												
bé'we	coina negro	duck species	rivers, caño, arrows	≠				≠		?	≠	1
hà'na	carétero	?	rivers, lakes, arrows	≠				≠		?	≠	1
andu'ra	garza morena	grey heron	rivers, lakes, arrows	≠				≠		?	≠	1
o'kara	garza blanca	white heron	lakes, arrows	≠				≠		?	≠	1
'huidiga'ra	garza paleta	painted heron?	lakes, arrows	≠				≠		?	≠	1
'hue	gaviota (?)	?	lakes, arrows, bird arrow	≠				≠		?	≠	1
'kwinchi"ai	perdiz	partridge?	savana, bird arrow (?)	≠				≠		≠	?	1
hu'ru-yu'ru	pavo	curassow	rivers, monte, arrows	≠	≠	≠	≠	≠		≠	?	2
ta'ra	jivaro (?)	jivaro stork?	lakes, arrows, shotgun	≠				≠		≠	?	2?
aoraha'te	pato real	duck species	lakes, arrows	≠≠				≠		?	?	?

Yaruro	Spanish	English	Location and Techniques	Season of Prod. S d-m	F a	W m-s	S o-n	Division of Labor Prod. M	F	Food M	Prep. F	Q
pi'be	entua	duck species	rivers, caños, arrows	✓	✓	✓	✓	✓		?	?	2?
pos'ná	pato	duck species	(doubtful if hunted on Cinaruco)									
MISCELLANEOUS MATERIALS COLLECTED FOR USE IN PRODUCTION:												
ya'ro	capuruna	leaf to wrap and store corn sticks	savana, picking			✓?			✓		✓	1
karam'bu	?	cigar wrapping	savana, picking	✓	✓	✓	✓	✓?		✓	✓	1
agam'bi	tabaco	tobacco	savana, picking	✓	✓	✓	✓	✓	✓	✓	✓	1
u'dę	curagua, macanilla	macanilla palm	near caños (?) a) for bows, b) for string, fibres for objects	✓ ✓	✓ ✓	✓ ✓	✓ ✓	✓ ✓		✓ ✓	✓ ✓	2 2
chara'ť'o	salau (salado?)	canoe wood (?)	montes, for making canoes	✓	✓	✓	✓	✓ ✓		✓ ✓		4
cinó'ť'o	caña brava	cane for arrows	near caños for foreshafts	✓	✓	✓	✓	✓ ✓		✓ ✓		4
tu	moriche	moriche	near or in caños, used for making house roofs, baskets, cords, fibres, hammocks	✓ ✓	✓ ✓	✓ ✓	✓ ✓	✓ ✓ ✓	✓ ✓	✓ ✓ ✓	✓ ✓ ✓	5
ngo	moriche frond	ditto	as above, often picked up from ground, or tree cut and fronds collected, last for years, may be reused.		as above							
biri'ť'o-i	guasca	bark strips	montes, caños, for lashing	✓	✓	✓	✓	✓ ✓		✓ ✓		3
é-im'bu	cera de abeja	beeswax	near caños, from large trees	✓	✓			✓		✓		1
é-'ke	miel	honey	as above	✓	✓			✓				1
é'ra	peramán	tree wax	as above? for arrows	✓?	✓?			✓		✓		2

[p.87]

192
221
223
462
262
824
237
314

2:Leeds E-5 (1958)1961 SS19 Yaruro SS19

[p.38]

192
252
262
462

2:Leeds E-5 (1958)1961 SS19 Yaruro SS19

Yaruro	Spanish	English	Location and Techniques	Food M	Prep F
COOKED DISHES AND THE DIVISION OF LABOR — CONVERSION OF FOODSTUFFS IN VILLAGE					
cham'pe	arepa	corn cakes	kernels crushed after shelling, fried in deep fat or boiled; grater often used	/	♂♂♂
ui'ta	?	corn purée	crushed corn (after frying raw kernels in deep fat or simply boiling) mixed with water; grater may be used for mashing	/	♂♂♂
pwɛ-u'ni	?	corn powder	dry hard kernels grated on metal grater (men make holes with nails) and then eaten dry	/	♂♂♂
iu	?	corn on cob?	boiled		♂
po'nô	?	corn kernels	dry, relatively hard kernels are shelled from cob, then roasted in deep fat, salted, and eaten	♂	♂♂
ca'dɛ	capuruna	corn sticks	shelled kernels grated into mush, carefully wrapped in capuruna leaves, boiled; stowed or eaten directly	/	♂♂♂
'pwɛ-e''ro	guarapo de maiz	corn juice	kernels are mashed to express juice, thick liquid	♂	♂♂
tambɛ	cazabe	bitter manioc	manioc flower prepared by cutting, grating, squeezing in tipiti, etc.		♂♂♂
1. tam'bɛ	cazabe	manioc cakes	flour prepared in flat cakes and roasted		♂♂♂
2. tam'bɛ-e'ro	guarapo de cazabe	boiled m. juice	juice is boiled to break down prussic acid	/	♂♂
3. tam'bɛ ?	carato	fermented "	flour and juice added to corn juice, ferments ca. 12 hr.	♂♂	♂
'oka''raru-''nâ	huevos	chicken eggs	usually fried		♂
'hurari''â-'pae	yuca dulce	sweet manioc			
1. ?	?	fried slices	fried in relatively shallow fat	/	♂♂
2. ?	?	deep fried	fried in deep fat		♂♂
3. ?	?	boiled	boiled whole after peeling (as above)		♂♂

Yaruro	Spanish	English	Location and Techniques	Food M	Food F	Prep M	Prep F
'parawnà	plátanos, topochos, bananas	plantains and bananas	many types often eaten raw; below are considered only those which are cooked				
1. ?	?	boiled	peeled and put in water to boil till soft	/		✓	
2. ?	?	fried slices	peeled, sliced, put in deep fat till hard			✓	✓
o'bwcia	marrano	pork	most of the work of killing and preparing is done, as with most meats, by the men; only boiling is usually done by women who own pots				
1. ?	?	boiled	small chunks boiled till almost mushy	/		✓	✓
2. ?	?	roasted	put on sticks over fire, facing it	✓	✓		
3. ?	chicharrones	cracklings	hide with thick layer of fat fried in its own fat till fat (and hide) are hard; stored for some time	✓	✓		
4. ?	?	deep fried	meat parts are deep fried till almost crisp			✓	✓
5. ngwei kz"pàkz"ro	?	blood sausages	blood carefully caught on slaughtering and saved in vessell till coagulated then stuffed into unwashed (?) intestines and cooked	✓	✓	✓	
chwi"l-e'ro	guarapo de caña	cane juice	squeezed out on "chaqui-chaqui", a wooden hand press	✓			/

NB—Preparation of foods produced only in the dry summer months, such as changuango root and changuanito savanere root were not observed and are not included here. These roots are both boiled by the women. Most meats, unless boiled, are prepared by the men by roasting. Fish, in general are prepared by women. Most fruits and seeds which are not eaten directly upon collecting are cooked by women.

2:Leeds E-5 (1958)1961 SS19 Yaruro SS19

192 252 262 462

Cp.39]

222 the moriche palm (*Mauritia flexuosa*); several seeds, notably chiga (= chigo?; — *Campsiandra comosa*); calabashes (*Crescentia Cujete*), and bees' wax and honey. Non of the items gathered are large in size or difficult of access except the bees' wax, one or two of the fruits, and calabashes which grow on higher trees, or may be very far. Gathered foods may be picked up by hand or with the aid of a digging [412] stick or machete, and may be brought back in the harvesting baskets. Other items [415] which may be gathered include the raw materials for baskets and mat-making or 824 for food-processing tools such as the tipitĺ, pots, or mortars and pestels. These [285] items include the fronds of the moriche palm, used for making cord, baskets, tipi- [323] tís, mats, and sacks; in some villages, clay for pots; reeds for arrows, wood for house beams, mortars and pestles, bows, and for cooking utensils. Wood, palm fronds, and many other items are gathered with the help of the all-purpose machete.

231 Pig herding is unsystematically done. The pigs, a recent acquisition, spend most of their time at will in the foraging grounds. The significant herding activity occurs only at times when one or another of the groups of pigs breaks into the gardens, an almost daily occurrence. They are then driven to the foraging grounds again, or if late in the day, into a close till morning when they are either driven forth again or allowed to scavenge in the village. There are several herds of pigs of sizes varying from perhaps a maximum of 20 including piglets to the more usual six or eight animals. The only tools used in pig care include a slaughtering [412] stick with which the pig is clubbed to death and knives to cut up the meat. The [262] close is built of logs cut with a machete and carried in by one or two men. Pig meat, though eaten with regularity, is definitely a secondary element of diet.

411 Hunting is done almost exclusively with the bow and arrow. There are several types of arrows. One for fish has a metal point approximately 4 inches long with a side hook about five inches from the tip, where the tip is set into the shaft. This may also be used for smaller animals. One for birds has a blunt wooden head, and does not appear to be used very often. A third type is used for larger animals such as deer and capybara. It has a blade about 6 inches long shaped like a laurel leaf and, at present, made of steel. At the base of the blade, a small cross-piece is affixed in order to prevent the precious blade from piercing so deeply into the animal that, if it escapes, it would carry the arrow away with it. The fourth type of arrow is used for turtles, tortoises, and alligators or other animals which submerge. The head is short and strong with a sharp recurved hook. The entire metal head is attached to a cord, and this in turn is attached to the arrow shaft, from which the head is detachable. On detaching, the shaft floats and the game can be followed in its underwater course. The bow is generally about 6 feet long or a little more. It is made rather crudely of the wood of the macanilla palm (*Bactris Gaspiaes*). Some animals, especially land tortoises and armadillos, may be caught [136] [224] by hand. Alligators may also be hunted with exceedingly heavy steel hooks and a strong line. In hunting, no traps, nets, surrounds, or drives are used.

226 Fishing is done chiefly with bows and arrows, though an arrow may sometimes be used as a spear, repeatedly jabbed into grassy waters near the river banks. Fishing may also be done with hooks and lines of different sizes. Bait is also used. A man may fish from a platform built by lashing logs horizontally to two trees

46 433 sacre, the labor force actually observed in "my" group was a little more than 25% of that number, or 18, and neighboring groups were generally still smaller. These 154, 67, and especially the actual 18 workers, even if, at any given moment, *all* were working at subsistence activities, would be distributed over various parts of the 110 square miles of territory under the kind of dispersive habitat and technological conditions described. They are in fact so thinly scattered as to preclude any sort of continuing managerial functions.

V

241 433 A consideration of the forms of the harvest surplus[89] is relevant to our discussion. Harvest surpluses must be considered with respect both to individual subsistence resources and to all subsistence resources taken together. In the annual cycle, there is considerable variation in the amount produced of any given crop, except for sweet and bitter manioc which together constitute perhaps 40% of the annual food supply of the Yaruro. Manioc produces throughout the year. Given that the manioc-growing areas are widely dispersed and that considerable labor is drawn from manioc areas by still more dispersed resources, it follows that most work units for manioc gardens will consist of only one or two men, each having their own swidden or sharing it with one or two others to supply themselves and their immediate families throughout the year. As might be expected, land tenure and land usage patterns are in accord with this inference. Occasionally small oscillations in the manioc crops may produce small harvest surpluses. These, at least nominally, belong to the man in whose swidden they grow and are his for disposal. The quantities, however, are exceedingly small, and present no problems of storage or disposal necessitating more centralized supervision and allocation. Most other resources display a similar pattern though to an even smaller degree. ● 262 Fish are obtainable, for the Cinaruco Yaruro, all year round with almost equal ease, though the Palmariteños have a more difficult time because of the grassy and muddy waters in the rainy season. Hunting windfalls and large pigs are the only animal sources which present harvest surpluses of any size. However, these are small enough so that they last at most two or three days, and they are so irregular both as to occurrence and as to personnel involved that no regular centralized [251] institutional mode of handling them is entailed. The virtual absence of meat storage

[171] For example, in the Trobriand Islands, in a good year, all the yams harvested cannot be eaten at once, nor can they be stored. Some portion of the crop is then lost by spoilage. We may construct, in terms of calories or other significant food values, two ratios:

[146 464] $\frac{C_h}{C_p}$ $\frac{C_c}{C_h}$

C — Calories
c — consumed
p — potential
h — harvested (= available for use)

The first may be used as a measure of the efficiency of the productive capacity of the technology; the second as a measure of the efficiency of the distributive capacity of the technology.

[89] The technological, producers, and harvest surpluses are defined in Harris, 1958, [114] and implied in Harris, 1959. They are dealt with in detail with respect to the Yaruro in Leeds, 1961. Other relevant discussions of surplus are found Sahlins, 1958; Jacobs and Stern, 1952, Ch VI.

also inhibits any such development because it forces the immediate distribution of most of the meat of the slaughtered pig or captured game. There is no constantly or repeatedly stored supply to be supervised or allocated. In fact swine and windfall game, properly considered, correspond to the small oscillations of the manioc supply and are totally different from the regularly occurring massive incidence of food sources like buffalo herds, salmon runs, and wheat harvests of temperate climates or crab runs in the tropical Orinoco delta of Venezuela.[21]. Of all the food resources, the only one with a marked harvest surplus is corn. The significance of even this harvest surplus is reduced by a) the smallness of the quanta involved relative to the total food supply, and b) the fact that there are two corn seasons, one beginning in June, one about the beginning of February. Temporary harvest surpluses of corn may, however, contribute slightly to the enhanced prestige of those individuals who by their own will and work have been most productive.[22] They say with appreciation, "He is a hard worker", but the prestige is relevant only to the sphere in which it is gained. It does not necessarily give him prestige in some other spheres of cultural life, such as, for example, the ceremonial or decision-making activities.

In taking an overall view of the food resources, it will be noted that there are no clear harvest surpluses, and that the oscillations in supply, which are in truth minute and momentary harvest surpluses, are so small and irregular and varied in location as to be insignificant determiners of managerial functions. At most one might expect the harvest surplus of corn to elicit some small allocative function, generally none. Storage, too, in this case, is not a technique requiring administration as with wheat in grain elevators. It would in fact be better to consider this kind of storage as a steady presence of food rather than as storage at all, even though it functions as such.

The extra labor requirements of these small upward oscillations of the harvest surplus are likewise, in general, indistinguishable from regular labor requirements and are easily absorbed by individual workers. Or a worker may take along a child, who goes as much for the fun of being with his father or grandfather, but nevertheless carries back some produce. This type of situation is in sharp contrast with, say, the labor requirements of a large harvest surplus like the wheat crop in the United States which demands a large amount of labor quickly and temporarily. Such a harvest surplus entails a number of organizational problems foreign to the harvest oscillations.

---

[21] Personal communication from Johannes Wilbert who has done extensive fieldwork with the Warrau in the Amacuro Delta of the Orinoco River.

[22] Yaruro individuals differ in productivity not only because of inborn qualities such as strength and native abilities, but also by choice based on tastes. Some do not like to grow corn, others do not like to grow pigs, others still prefer to hunt or trade. The food quanta produced by these several activities vary greatly. The individual may exercise these choices in a cultural setting where any such choice benefits the community. All produce eventually finds its way into the community at large through the distribution mechanism. The person is not acting as an individualist regardless of the interest of others, but at his own optimum, given his unique person, in the community as a whole. Cf Fn 5 *supra*.

221 262 Finally, the Yaruro deny any considerable long-term oscillations in the environment and consequently in the resources. The extremes, particularly the minima, of habitat factors which regulate food and population balances, according to Liebig's Law, fall within narrow limits and again elicit no special institutions of management or of equilibrium maintenance to compensate for them, as in the case of the potlatches of the Northwest Coast of America, the buffalo hunts in the Great Plains of the United States, or the use of pigs in Melanesia.[23]

VI

868 One more point may be made regarding the ecology as limiter of chieftainship among the Yaruro. The tools, techniques, and resources require no very extensive, highly specialized or esoteric knowledge. In fact any man or woman, and any child as well, has access to such knowledge, and it is easily acquired by all members of the society who thus have, at least potentially, equal access to control over the means of life. There is no specialized knowledge, at least with respect to technology and habitat, which requires a specialized repository in the form of a chief or learned person. Yaruro knowledge, itself dependent upon the inventory of tools, techniques, and resources, inhibits any tendency towards the development of any [463] sort of specialists in technical or managerial knowledge. As one might expect, there are no true specialists in Yaruro society. Here and there women make pots and certain women seem to have a special bent for making woven sacks but these [756] are not properly specialities. Nor, from a technological or ecological point of view, is male or female shamanism in any way a speciality. They do not appear to be specialists even in esoteric knowledge. Knowledge of the general type described here might be called 'dispersive' or 'egalitarian' since it tends to become more or less uniformly distributed among the members of the society. A consequence of the existence of this type of knowledge, associated with the kind of technology described, is that there will be no specialised training of any specialists and, of course, no specialised personnel to do such training. This is the situation which obtains among the Yaruro both with respect to technical and managerial activities. Thus, in Yaruro knowledge, there is no source for the support of an institutionalized and strong chieftainship.

VII

221 241 361 622 In one respect, the ecology encourages chiefly functions. A balance is struck between the cultural resources, the possibilities that the habitat affords for their production, and the length of time that areas of land can be exploited. This is particularly true of the horticultural lands since they can no longer be used after three years of cropping, and it becomes necessary to move on. The result is that there is a slow migration of resource areas, chiefly of horticultural areas across the tribal territory. The lands in cultivation move further and further from any given village until a point of suspension is reached at which the walking and working

[23] Cf. Suttles, 1960 a, 1960 b; Llewelly and Hoebel, 1941; Vayda, 1961; Vayda, Leeds, and Smith, 1961.